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ABSTRACT

A study looked at how a science and mathematics intervention program for middle school girls, the "Voices" program, affected African American students and their families. Effects of the program on academic achievement and participation and persistence in school were also studied. The Voices program was implemented in one urban and one rural county in West Virginia. Of the program's original 73 participants, 33 were African American. In the first program year, the girls met once a month during the school year for workshops. In years 2 and 3, the girls attended workshops and worked with mentors who had careers in science, mathematics, and technology. In the final year, the students met regularly with school sponsors and were involved in designing and completing community service learning projects. Program sponsors experienced a great deal of difficulty in finding staff willing to work with the urban girls, many of whom were African American. The staff members who were willing to work with these girls did not necessarily have a real sense of advocacy for them. In the rural site, the engagement with the girls' schools and communities was instantaneous and lasted throughout the project. Access was facilitated by the involvement of two African American women who served as bridges to the project, something that was not found in the urban community. Study results show that programs like "Voices" can make a very positive difference for African American girls and their families in rural areas, but experiences in the urban site challenge program developers to think creatively about designing interventions that can provide sustained engagement for African American girls and their families. (Contains 29 references.) (SLD)

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"I'D LIKE TO GO TO HARVARD BUT I DON'T KNOW WHERE IT IS: BRIDGING THE GAP BETWEEN REALITY AND DREAMS FOR ADOLESCENT AFRICAN AMERICAN GIRLS"

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"I'd Like To Go To Harvard But I Don't Know Where It Is: Bridging the Gap Between Reality and Dreams for Adolescent African American Girls"

Middle or junior high school is a time of transition for all students. The challenges are numerous and the path is uncertain. Students are moving from childhood to adulthood and developing physically, emotionally, and mentally. A growing body of literature focuses on the special challenges adolescent girls face in schooling and developing and maintaining self esteem. (AAUW, 1990; Campbell, 1992; Hanson, 1993; Kahle, 1985; Orenstein, 1995). Factors affecting minority students' performance are also well documented (Clewell, Anderson, & Thorpe, 1992; Kuykendall, 1992; Oakes, 1990; Tobias, 1992). African American girls are at the intersection of both bodies of research, yet we know little about factors that contribute to their academic success or failure. Researchers seem to assume that separate studies on minorities and on adolescent females have adequately addressed this issue. There is, however, a growing recognition of the need to look at data concerning girls of color to validate whether assumptions that hold true for minorities and for females generally also hold for this sub-population (Campbell, 1996). Fordham (1993, p. 8) states:

> African American women's history stands in striking contrast to that generally associated with White womanhood and include (1) more than 200 years in which their status as women was annulled, compelling them to function in ways that were virtually indistinguishable from their male slave counterparts; (2) systemic absence of protection by African American and all other American men; (3) construction of a new definition of what it means to be female out of the stigma associated with the Black experience and without the virtue and purity affiliated with White womanhood; and (4) hard work (including slave and domestic labor), perseverance, assertiveness and self-reliance.... Hence womanhood as remembered, and femaleness as observed, were not available to them; they had no choice but to improvise a new definition of femaleness that would be a synthesis of the bicultural worlds they remembered and inherited.

This definition of femaleness places African American women and girls in direct opposition to the constructs and values that historically defined the White "cult of true womanhood"–piety, purity, submissiveness, and domesticity (Collins, 1991). It is not surprising that this opposition creates tensions within the schooling process. Consider the following: "African American adolescent girls are more likely than boys to be rebuffed by teachers, and more likely to be ignored or disrespected by both teachers and counselors" (Orenstein, 1995 & Pipher, 1994). "African American girls struggle with a society that tolerates sexism, racism and discrimination on the basis of socioeconomic status" (Cauce, et al.1996, p. 113). Little in the dominant culture affirms or embraces their gender or race in ways that are not exploitive. Textbooks that provide adequate information on the contributions of people of color or of women (especially women of color) are not readily available in schools. Thus, "a key developmental task for African Americans, whether male or female, is learning how to live among White persons, while becoming a Black person" (Cauce, et al. 1996, p. 102).

Despite these formidable challenges, "African American girls can and do succeed in constructing positive self-identity, and maintaining a higher sense of self-esteem than their White and Latino counterparts throughout adolescence." (AAUW, 1990). We argue that the interpretations of these and other phenomena must be informed not only by explanations of adolescent development such as those Gilligan and Taylor (1995) offer, but must reflect knowledge of the historical legacies of African American women, including perspectives from Afrocentric and Black feminist theory.

The authors hope to stimulate the dialogue concerning gender and ethnicity, as experienced in the arena of science, mathematics, and technology (SMT) education. The findings and observations presented here add to the limited knowledge base on girls of color and broaden the framework for interpreting the schooling experiences of African American girls. The paper examines how a science and mathematics intervention program for middle school girls (*Voices*) impacted its African American participants and their families, and how it effected participants' academic achievement in mathematics and science, their participation and persistence in the program and school; and their perceptions of mathematics and science. Finally, the paper will offer suggestions for structuring SMT interventions that may improve the persistence of African American girls in these subjects and suggest ways schooling can build bridges between girls' dreams and reality.

Theoretical Perspective

We assume that the girls in our study are part of multiple cultures and how they interpret experiences is shaped by factors including ethnicity, social class, place, and gender. Our work is therefore grounded in studies that focus on the experiences of schooling for African American children in America, such as those of Fordham (1996, 1993, 1991, 1988), Fordham & Ogbu (1986), Sanders (1997) and Lipman (1997). Our work is also informed by Black feminist perspectives such as those of hooks (1981), Giddings (1984), Collins (1991), and White (1985), and research on African American family life (Billingsley, 1992) and African American girls, including that of Leadbetter and Way (1996), Fordham (1993), Orenstein (1995). Perspectives from these studies provide useful lenses for examining how the interaction of race, social class, societal expectations, and ethnicity impact African American girls, sometimes before they ever enter the formal schooling process. A full illumination these perspectives is beyond the scope of this article. However a brief discussion of their most salient implications for our research follows.

African American Students: Sponges or Stones?

Fordham and Ogbu's work discusses African American students' resistance to schooling. They assert that a primary factor causing African American students to underachieve is their desire to resist attempts by "the Other" to deconstruct their racial identity and embrace racelessness. "Racelessness (1) denies the existence of racial ethnic and cultural barriers in the larger society; (2) seeks to systematically expunge from African American students' cultural

repertoire those aspects of their group identity that might be associated with their African and African American ancestry; and (3) attempts to reconstitute African Americans in the image of the Other" (Fordham, 1991).

The idea of " Black fictive kinship" discussed in Fordham's (1991) research is also important to developing an understanding of why African American students, even when they can excel academically, may choose not to do so. Fordham states:

> Essentially, membership in the Black fictive kinship necessitates suspending the idea of separation of a personal self and a cultural self....[it] celebrates the achievements of the group, rather than the individual.... This kind of social interaction stands in stark contrast to what is expected of students in the school context–both public and private—where a strong separation of "I from us" and "me from thee" is not only expected but deemed absolutely essential for school success. Indeed, the quintessential feature of the dominant society's organizational life is distinguishing the individual from the group— an inversion of a central premise of fictive kinships in the Black community.

Achievement is not inherently antithetical to the Black fictive kinship. For example, African Americans took pride in the accomplishments of the late Supreme Court Justice Thurgood Marshall. His individual achievements benefitted the entire group, not only himself.

Sanders' (1997) research focuses on how a Black fictive kinship ethos can be the impetus for supporting high educational achievement as a strategy for acting out resistance and using aspects of the "kinship" experience as motivation to achieve. This research focuses on African-American students using their knowledge of racial oppression as motivation to excel. Sanders states that "...African American adolescents respond to racial discrimination, particularly educational and occupational discrimination, in different ways. Whereas one response may be mental withdrawal and lack of achievement effort (Ogbu,1978), another response, rarely addressed in the literature on Black student achievement, may be a strong racial identity and a commitment to academic and professional success." Consequently, there is evidence that with proper intervention African American students, who might otherwise view striving for academic excellence as an act of "negation of self and culture," can be empowered to embrace academic excellence as a form of resistance and empowerment.

Finally, Lipman (1997) looking at the role teachers play in perpetuating educational inequality, offers this observation: "In fact, team discussions [among teachers] about the pathologies of at-risk students tended to strengthen convictions that students and their families were the problem...." Candid discussions among the faculty or between researchers and faculty regarding academic achievement issues and ethnicity were not only unwelcome, but were viewed as divisive. Lipman further concludes that

> if teacher participation is to make schools more liberatory, then it will need to be intimately linked with a critique of how dominant interests are played out in schools and how existing relations of domination are reproduced... Without this critique and a

willingness to challenge existing power relations, there is little cause for optimism that teacher participation in reform will significantly alter the marginalization of low-income students of color in schools (p. 33).

Perspectives on the Legacies of African American Womanhood

African American women have historically worked outside the home and, when opportunities availed themselves, pursued education. African American girls are acculturated by African American society and their by mothers to see working and mothering as compatible and not oppositional. "Learning that they [daughters] will work and that education is a vehicle for advancement can also be seen as ways of enhancing positive self-definitions and self-valuations in Black girls" (Collins, 1991 p. 124). Yet, as previously stated, many schools do not empower African American girls. In order to be recognized as performing well academically they are often forced to become "phantoms at the opera" because if they assert themselves they may be labeled as "those loud Black girls" (Fordham,1993). "Hence, "those loud Black girls" are doomed not necessarily because they cannot handle the academy's subject matter, but because they resist "active participation in [their] own exclusion" (as cited in Fordham,1993). An examination of how society views African American women and girls is useful in interpreting these phenomena.

The dominant culture sees African American women and girls through the templates of three powerful stereotypes—the historical legacies of slavery: Mammy, Sapphire, and Jezebel. These stereotypes, mediated by socioeconomic status, operate to one degree or another, in today's society.

The Mammy stereotype is that of a faithful obedient domestic servant who is totally asexual and exists to care for and carry out the wishes of her oppressor. (Collins, 1991; White, 1985; hooks, 1981) "Employing Mammies, the stereotype, buttresses the racial superiority of White women employers and weds them more closely to their fathers, husbands, and sons as sources of elite White male power" (Collins, 1991). "They [dominant society] saw her [Mammy] as the embodiment of woman as passive nurturer, a mother figure who gave all without expectation of return, who not only acknowledged her inferiority to Whites but who loved them....[A Mammy] poses no threat to the existing White patriarchal social order, for she totally submits to the White racist regime" (hooks,1981 p. 84). African American women have a long history of domestic and menial work in this country, work that once was done by Mammies. African American women were referred to as "girls;" addressed by their first names by both adults and children; required to address Whites, both adults and children, by their surnames; and treated in ways that said they were neither intelligent or responsible. As a Mammy, the African-American woman was not supposed to challenge or question authority—she's a "good girl" who knows and stays in her place. Even when African American women were equipped with the education and skills to assume higher paying and more prestigious employment, societal discrimination and hiring practices often defeated their efforts and they were forced back into domestic work.

The Sapphire stereotype discussed by hooks is the opposite of Mammy. Sapphire embodies many of the negative qualities that are sometimes attributed to African American

women. "As Sapphires, Black women were depicted as evil, treacherous, bitchy, stubborn, and hateful, in short all that the Mammy figure was not "(hooks, 1981, p. 85). Even now, African American women and girls are "feared" for their tempers, which are viewed as totally irrational and out of control. Jerry Springer and Ricki Lake, nationally syndicated television programs are replete with images of women, especially African American women fighting physically, using profanity, and verbally threatening their opponents. These images promulgate the Sapphire stereotype and cast African American women not only incapable of using rational threats to solve problems—but as dangerous, potentially violent creatures. If African American women's and girls' anger can be cast as an inherent artifact of their "evil dispositions," like poorly bred animals, then the roots of their anger can be ignored because they are viewed as simply " the nature of the beast."

The third stereotype, Jezebel, is rooted in the depiction of African American women as sexually promiscuous and amoral. This stereotype was used by White males to allow them to remain guilt-free while sexually exploiting African American women. If, as they asserted, African American women were naturally promiscuous, then no blame could be attached to those who availed themselves of their sexuality. (White,1985; Giddings,1984; hooks, 1981).

Witness in our contemporary society the differing perceptions of Monica Lewinsky and Anita Hill. Lewinsky admitted to having a relationship of a sexual nature with the President of the United States. Yet, some media reports portrayed her as the "victim" of an older man's lascivious intentions. Lewinsky was described as a "confused young woman" who was awed by the glamour of the presidency. Hill, who said she resisted the unwanted advances of Clarence Thomas, was vilified by certain media segments for "victimizing" him. Her morals, her values, and her motives became an issue.

Recall the flurry of negative media coverage when Murphy Brown, a fictional White news broadcaster in a situation comedy, announced she was choosing to have a child out of wedlock. The powerful dominant male culture was incensed that a White woman, though fictional, would choose to be an unwed mother. Murphy was abandoning one of the virtues of the "cult of true womanhood"— purity (Giddings, 1984). To rectify this fictional wrong, the then Vice President of the United States publicly denounced her actions. Clearly Murphy, he surmised, was leading the country into moral decline. Despite the public retorts to his position, a powerful message was sent—unwed mothers are sexually promiscuous and lack of morals.

Mammy, Sapphire, and Jezebel are stereotypes that express the dominant culture's profound lack of respect for African American women. Mammy never grows up to become an adult figure worthy of respect; Jezebel and Sapphire need to be watched and guarded, lest they run riot or undermine the values of decent folks. All three are financially dependent on the dominant culture. No African American woman or girl escapes having these stereotypes forced upon her, even if she is from a middle-class home. Vanessa Williams, the first African American woman to be named Miss America, was embraced by the dominant culture as a symbol of beauty, intelligence and grace, and then publicly slapped down as a Jezebel for a youthful indiscretion. The poorer the African American mother, the higher the probability that the

disrespect will be blatant and go unaddressed. African American girls literally learn at their mothers' knees and through their conversations with what hooks (1981) calls "tongues of fire" the ugly realities of how society views them and may treat them. Some African American mothers and girls have the tools needed to force the dominant culture to behave with respect; others do not. Some girls may lash back verbally, or even physically, at teachers and students whom they perceive to be ignoring or disrespecting them, only to be discounted as Sapphires.

In the schools were the *Voices* project was implemented, we saw the impact of these stereotypes on the *Voices* girls and their families. In the urban site, the attitudes of faculty at one of the three elementary schools and the junior high school were clearly shaped by the Jezebel and the Sapphire stereotypes. Teachers were unwilling to get involved with the girls and have meaningful relationships with their parents or guardians. Teachers held low expectations for the girls and did not see a need to question why the girls were belligerent in school or not doing better academically. One urban junior high school teacher articulated the feeling that was pervasive throughout all the urban schools to one degree or another. When asked her opinion of a seventh-grade African American *Voices* girl she said this:

> She lives in [the housing project]. You don't get your smart kids out of there because, you know, that's low income and education is not one of things there... She works well for me. But I know she has some problems with other teachers. They don't like her. She has an attitude problem, okay. And at the beginning of the year she looked like she had a chip on her shoulder. I don't know why she's in that top group... The top group are kids who would be on your honor society, which we recognize for good citizenship, model students, A and B students. [She] would not be there, because a lot of teachers would not recommend her because of her attitude.

Ironically, this student had standardized test scores identical to those of an African American *Voices* girl in the rural county. The rural African American girl had a GPA of 4.0. This urban girl was a leader within her group of friends and survived in home and school environments that were hostile. Yet, these were not viewed as strengths. There was no recognition of how difficult it was for her to try to pull away from the "Black fictive kinship" that existed in her neighborhood to try to be a part of the "academy". Instead, she and her African American friends were viewed as those "loud Black girls".

In the rural county, the Sapphire and Jezebel stereotypes did not seem to evidence themselves, but the Mammy stereotype (knowing her place and being viewed as dependant) evidenced itself in the attitude of teachers and parents from the rural county seat. It was an unspoken pattern of interaction in which, from our perspective, African American parents, guardians, and children, had been acculturated to stay in "their place." Interactions between project participants, both adults and children, were polite and cordial. It was clear, however, that parents from the county seat only wanted to advocate for "their girls" and that "their girls" wanted to interact only with each other. One African American girl in the rural county shared the following incident, which typifies the race dynamic with the project's ethnographer. She and

a friend felt a White classmate had treated them rudely because of their race:

> She [White classmate] got to get smart with us. And she acts like she's racist. And she don't say that to like White people. She only says it to Black people. Like when we had that [*Voices*] trip, and [me and Tara] asked to go to the bathroom when we was on the bus, and it pulled over, and...[the White classmate said something] about us peeing on ourselves. And we got upset because we didn't say nothing to her because [the school counselor, an African American] told us to ignore her.

With the obstacles already facing these girls, they and their parents want to make sure they do not say or do anything that would hurt their individual chances of success.

Because of their family situations, low expectations for the girls' educational achievement (another attitude reflecting the Mammy stereotype) were expressed. Since most of the girls come from homes where welfare checks were the primary source of income, it was presumed that these young women would also end up on public assistance. The attitude of school personnel was that they were doing the best they could, considering what they "had to work with." Although one eighth grade algebra teacher started tutoring African American *Voices* girls after school, she did not believe kids at that age were "capable of abstract thought." When the *Voices* staff asked how much of the text would be completed that year, she estimated that she would cover half of it. Consequently, these students would not be prepared for their next mathematics courses and this would reinforce the idea that they were not capable of doing mathematics. Though not done with malice, if not corrected, the impact of low teacher expectations will have an irreversible and profound impact on the girls' educational attainment and opportunities.

In both the rural and urban counties, African American girls learn that, like their mothers, they must cast off stereotypes and resist negative attitudes that are thrust upon them. African American girls are literally engaged in a fight for their lives and future.

The Situation

Rural and Urban Images: Voices of Girls in Science, Mathematics, and Technology (Voices) was a three year project funded by the National Science Foundation. The program, which began in the fall of 1995 with sixth-grade girls, was designed to involve the same girls through their seventh and eighth-grade years. Two counties in West Virginia, one urban, the other remote and rural, hosted the project. Of the project's 73 original participants, 33 were African American.

Table 1.
***Voices* Retention and Enrollment Data**

	6/96	1/97	6/97	9/97	1/98	6/98
Urban African American	21	9	14	11	8**	5***
Non-African American	16	8	11	9	7	7
Total	37	17	25	20	15	12
Rural African American	12	8	8	7*	7	7
Non-African American	24	21	19	19	19	19
Total	36	29	27	26	26	26

*Five girls moved away from the rural county
**Only five of the original African American girls were still enrolled in the program.
***Only two of the original African American girls completed all three years of *Voices*.

All of the African American girls attended schools where more than 90 percent of students were eligible for free or reduced lunch. Three rural schools and three urban schools were involved in the project during its first year. The three urban elementary schools fed into one junior high school. The three rural elementary schools fed into two different rural middle schools. Consequently, during the second and third years of the project, there were a total of three middle/junior high schools participating in the project.

African Americans comprise a small percentage of West Virginia's total population (approximately three percent), so sites were carefully selected to ensure that *Voices* would have a critical mass of African American girls in each site. Girls of all ability and socioeconomic levels were included in the project. Because of the large number of rural girls who wanted to participate in the project, girls from the rural schools were randomly selected and ethnicity was used to stratify the sample. The three urban schools had so few sixth-grade girls that we invited all of them to participate. During the project's first year, 12 of the 36 rural participants were African American. Of the 37 urban participants during the project's first year, 21 were African American. Teacher recommendations, grades, and interest in science and mathematics were not used to select participants.

In year one, project participants met once a month during the school year for workshops in their respective counties. In years two and three, in addition to the workshops, the girls worked with mentors who had careers in science, mathematics, and technology. During the third and final year of the project, girls met regularly with school sponsors and were involved in designing and completing community service learning projects.

Family and community support were critical components of the girls' success. The project actively worked with parents and other advocates to give them information and strategies to encourage their girls in schooling and SMT studies.

Methods and Data Sources

A female research associate interviewed each girl in the project for approximately 30 minutes in the fall of 1995, 1996 and 1997. During the fall of 1997, a female researcher conducted in-depth interviews with four girls from the urban site and four from the rural site, each of who had participated in *Voices* since its inception. Several urban girls who had left the project were interviewed to determine why the girls chose not to continue. All interviews were conducted at the schools and were audio taped with the girls' permission. Interviews were informal and loosely structured. In response to probing question, the girls talked about their interests, plans, self-concept, perceptions of SMT, perceptions of their academic abilities and social support networks. They were also asked what they liked and disliked about the *Voices* project. Additional data collected from participants include survey instruments, journal entries, field notes and observations made during workshops and trips. We also collected academic achievement data (grades, standardized test scores, etc.) for statistical analysis of academic achievement data.

Through frequent interactions with the girls, we gained numerous insights into many areas of their lives and schooling experiences. For purposes of this paper, however, we confine our discussion to issues most closely associated with their participation in the *Voices* intervention. The purpose of this paper is to discuss the intervention relative to African American participants, therefore, we have intentionally limited discussion of the White participants. We agree with Billingsley (1992), who states, "What White families believe, how they act, and how they are structured do not constitute controlling norms for African American people." Rural and urban environments are compared only to suggest ways that some aspect of one environment can be re-created in the other to benefit the girls. Both locales have significant African American populations, particularly in the neighborhoods of the *Voices* girls. All names and locations in this narrative are pseudonyms.

Reality 101

The Urban Elementary Schools

The *Voices* program included girls who did not usually participate in science and mathematics enrichment programs. Initially, 21 of the 37 urban participants were African-American, with a majority from low income families. The African American *Voices* girls attended schools that serve a large housing project and two other communities, including a small housing complex and a number of small, primarily rental homes. Over the course of three years, in each of the four urban schools we were asked how we had selected "those girls." The general

consensus, particularly at the elementary school that served the housing project, was that the girls "can't benefit from, don't deserve or appreciate a program like *Voices*."

As sixth-graders, the girls were outgoing, outspoken, and curious. These girls behaved in ways that said to adults, "I do need your approval or affirmation." It was also clear that some of the African American girls did not feel respected or valued by their schools. They used attitude, rudeness, and unresponsiveness to teacher requests to demonstrate that they refused to be cowed. When these girls felt they or one of their classmates had been disrespected, they were defiant, reinforcing teacher perceptions that they were out-of-control or Sapphires. At this school we had a great deal of difficulty finding a teacher to coordinate *Voices* activities and work with the girls and their families. The coordinator finally chosen was White. She felt uncomfortable in the girls' neighborhoods and refused to visit alone. By the end of the project's first year at this school, the coordinator was hardly speaking to the girls or other *Voices* staff. She told the staff that she felt hopeless about the girls' prospects for improvement. However, in many ways these girls were no different than their suburban counterparts.

The girls at the three elementary schools participated in sports such as baseball, track, basketball, football, swimming, skating, and most of the girls said they enjoyed reading. Television watching was also a common pastime and many of the students had cable. The urban African American girls all wanted to go to college and connected achieving their career goals with attending college. One girl aspired to go to Harvard because she had heard it was the best school in the country, but, she said, "I don't know where it is." The girls aspired to be doctors, day care workers, teachers, lawyers, models, astronauts, and paramedics,. We viewed the girls as very much ready for an intervention like *Voices*. Our enthusiasm was soon tempered by reality.

Finding staff, let alone committed staff, to work with the urban *Voices* girls was a perpetual challenge. Repeatedly we heard from teachers and administrators that "parents don't care" about their children and do not show up for activities and conferences. The assumption of negligence was common, particularly when teachers discussed parents from housing projects. An urban principal at one of the *Voices'* schools did not notify any students at her school about the qualifying exam for pre-algebra in the seventh grade. She did not feel they were ready and she told us she was not even allowing her own daughter to take the course in seventh grade. When we spoke to the girls' sixth-grade teacher, she did feel some of the students were capable. When we brought this to the principal's attention, she told us that if parents wanted their girls to take the exam, they would need to make arrangements to get them to the testing site. Transportation and the time scheduled for the test were barriers for the girls' parents. Principals and faculty in the two other urban elementary schools were not hostile toward the program and girls, but neither were they enthusiastically supportive. To them, *Voices* was apparently just one more program. Fortunately, in these two schools we were able to employ school coordinators who were well liked by the *Voices* girls and respected within their schools. Although attendance during that first year was not stellar, we were optimistic that there would be more support for the girls once they entered junior high school.

However, we discovered that the junior high school teachers and principal also felt we were not targeting the "right types of girls." The large junior high school (700 students) included students from a broad socioeconomic spectrum, unlike the girls' former schools. We found the principal had expected that the program would be limited to "good" students. He expressed concern that we would only frustrate the current *Voices* girls by suggesting they could achieve at a level that was beyond them. The *Voices* program at this point still had more African American girls than non-African American girls. Many were from low income families and several had failed subjects in sixth grade.

The junior high offered many clubs and other activities, often during the school day. The atmosphere in the school was one of extreme busyness. Visitors who entered the school office were commonly ignored. A visitor could stand in the front office and never be noticed. Frequent fights between students added to the school's chaotic atmosphere. Teachers and administrators were always on the run, and announcements frequently interrupted classes. The principal of the urban middle school commented to us at the beginning of the girls' seventh-grade year, "you all are just setting those girls up for failure. If you really want to help those girls, you need to give them a program that works on self-esteem." It took us almost one month after school began to identify a school coordinator. The coordinator quit after one month, and her responsibilities were split between the school counselor and a *Voices* community coordinator who was allowed to come into the school. The counselor received compensation from *Voices* for her involvement.

In the urban junior high school, the *Voices* girls and the program were invisible. It has been said that the opposite of love is not hate, but indifference. And we, like the girls, certainly experienced the school's indifference toward the project. Shortly after the girls began seventh-grade, we asked for and were granted a meeting with the team of seventh-grade teachers responsible for the *Voices'* girls. That was the only formal contact we had with teachers during the entire two years the project was at the school. Although we extended invitations, no science or mathematics teacher ever came to a Saturday workshop. Once, as classes were changing, a staff member asked a teacher if she had seen the *Voices* girls. She responded, "I haven't seen them, but we hear them all the time." Like the "loud Black girls" in Fordham's (1993) article, many of the African American girls danced on the margins of acceptable behavior, even when they knew it might hurt their academic grades.

When we examined the grading practices of teachers in the *Voices* schools, we found that in the urban junior high site, the girls' grades were actually deflated because of their behavior. That is, when you compared their standardized test scores to their grades, their grades were lower than expected. A survey of grading practices in *Voices* schools indicated that teachers in the schools attended by African American students, both urban and rural, used non-academic criteria—behavior, tardies, etc.— in addition to achievement indicators to compute grades (Howley & Kusimo, 1998). This practice was particularly problematic for some of the African American (and non-African American) *Voices* girls, because these girls were inclined to be constantly in trouble for some infraction of school rules.

Even the female counselor at the junior high was not sympathetic to our desire to try to mediate their behavior and maintain the girls in the project. Because of problems with attendance and behavior, including some of the African American girls threatening to fight girls from the rural site at a museum sleep-over, all of the urban girls had to sign behavior and attendance policy contracts. The attendance policy, more than the behavior policy, eventually led to the dismissal of several of the girls from the project. Finally, the school counselor stated that "now we were talking," indicating that, from her perspective, some of the girls needed to be gone, not counseled.

The Rural Elementary Schools

The rural site was a severely economically depressed county once flush with coal mining jobs. "Rural" in reference to this county means isolated, not pastoral. A faded billboard on the main road proudly proclaims the area "Basketball Capital of the U.S." Basketball reigns supreme in the county, and many students dream of the NBA.

In the rural site, the African American girls all attended schools in previously racially segregated communities. The girls were well-mannered, warm, and cooperative. They came from homes where money was scarce. Race was never mentioned openly and adults, when asked, said there were no problems. However, we observed that participants in the project, both adults and girls, were very conscious of social class. *Voices* girls occasionally referred to the "snootiness" of the girls from the school in the county seat. Project staff constantly heard remarks on *Voices* field trips and other events about how county seat parents would be willing to do this and that for "their girls," referring to the girls from their school, not to all *Voices* girls. They clearly made an " us vs. them" distinction that initially took the *Voices* staff by surprise. Girls were grouped for project activities so they would have opportunities to interact with girls from different parts of the county. While this sometimes caused tension, these situations were resolved and kept in check by the girls. Indeed, the fact that girls from the county seat school were in the *Voices* project probably enhanced the project's status within the county. Many of these girls were daughters of professionals—teachers, administrators, small business owners, etc.—and were viewed as the county's elite.

In rural schools, lack of parental involvement was explained by saying that parents were not comfortable coming to school, were too busy, or were unable to get transportation. Parents were rarely described as uncaring. Teachers in the rural site knew parents and relatives of the students in other contexts. Because many of the teachers were part of the same community as the girls, they ascribed different motives to parental participation or lack of participation. These schools were not hostile or indifferent toward the African American girls and the *Voices* project. However, a benign neglect of academics was present. Teachers felt that by not challenging students, they were saving them from feelings of inadequacy and failure (Carter, Keyes, Kusimo, & Penn, 1996). *Voices* staff were told by county teachers and administrators that students in the county were different and cautioned not to expect too much. In fact, one well-respected teacher from a school in the county seat stated that "an A in that county wasn't like an A in other counties."

The twelve rural African American girls attended two different elementary schools. One of these was the newest school in the county, had a fairly modern appearance and was built to consolidate several smaller schools in the community. It was clean, orderly, and pleasant, but lacked displays of student work or other types of displays anywhere in the school. However, the principal and most of the staff exhibited real concern and commitment to their jobs and the students in the school. The principal was very supportive of the project and the project's school coordinator was enthusiastic and well liked by the girls.

The second elementary school was and still is in extremely poor condition. Holes in the walls, rickety staircases, and poor plumbing and electrical infrastructures characterized the school. The school's condition precluded wall murals, book displays or other exhibits, and there were no displays of student creativity or originality, only of work showing assignments well completed.

The rural girls, like their urban counterparts, enjoyed playing sports, with basketball being the most frequently mentioned sport. Besides sports, the girls listed reading as a favorite activity. Their reading materials of choice were mysteries, scary books, *Babysitter* serial books, and religious materials. Also unlike most of the urban girls, all of the rural African American girls were involved in church activities and several were involved in other organized activities such as recreational sports teams and 4-H clubs. As sixth-graders, when asked to list two or three career choices, they all wanted to become professional women—teachers, nurses, doctors, and lawyers.

When the *Voices* girls entered seventh grade, they attended two middle schools. One was located in the county seat and the other served "the other end" of the county. In the project's second and third years all of the African American *Voices* girls attended the middle school serving the "other end of the county." The *Voices* program was generally viewed within the schools and community as "a Godsend."

Bridge Number 1: Voices Monthly Workshops

During the three years of the project we made several adjustments to our work plan. Some of the circumstances we encountered within the schools, particularly at the urban site, took their toll on the project and the girls. Despite the challenges and hard realities we faced, our goal was to help these young women and to retain as many of them as we could in the project. The bridges we provided through this intervention provided powerful support for some of the African American girls but would prove to be insufficient for others, particularly the urban African American girls.

Urban Girls

Many of the urban African American girls seemed enthusiastic about the *Voices* field trips but not about the monthly workshops. Getting most of them to the workshops was a major concern throughout the three years of the project. The "early" 9:00 a.m. starting time seemed to

be a hurdle many of the urban girls could not overcome, regardless of ethnicity. This is particularly instructive in view of the fact that their rural counterparts got up much earlier and rarely missed workshops. Ironically, the only African American girl to attend all workshops expressed what seemed to be a very common feeling among the girls. When she was asked what she disliked most about *Voices* she stated, "Getting up 9 o'clock...on a weekend to go to a workshop. I wish it could be like mid-day or something because I'm like half-dead when I get there." When asked whether that had ever kept her from coming she stated "No, I go to all of them, but I'm dragging when I'm there." Many of the girls would indicate they were coming up to the Friday before the workshop and then not attend. Parents, when called by *Voices* community coordinators, would also indicate that their daughters planned to attend the workshop or event, only to have the girls be no-shows. When we counseled the girls individually, they all expressed interest and stated they would attend future events; however, the erratic attendance pattern continued for many of the girls.

Although transportation to all workshops was provided regardless of whether they were at school or at an alternative site, attendance was still problematic. The urban African American girls, like their rural counterparts, came from homes where financial resources were limited; unlike the rural girls, more options were available to them for activities outside of school– cable television, hanging out with friends who lived close by, "running the streets," community-sponsored events, the mall, movies, etc. The girls had numerous ways they could spend their discretionary time.

After we instituted an attendance policy, we went from 21 African American girls at the beginning of seventh grade to nine by the year's conclusion. At the beginning of the third year there were eight African American participants. However, of the eight only five were from the original 21. (See Table 1). At the conclusion of the project, only two of the original African American participants remained. The African American girls in the urban site had the same opportunities as the rural girls. But lack of school support for the project and the project's participants, tenuous connections with parents, and the "paleness" of project activities compared with their other options proved to be a toxic mix for these urban girls.

Some of the African American girls who dropped from the project primarily for non-participation cited *Voices* staff's "attitudes" as a reason why they "quit." Excerpts from a memo to project staff from the project's ethnographer stated this:

> Even though these girls all had low or sporadic attendance at *Voices* events, some explained their "quitting" as the result of an isolated unpleasant experience with the program—often one instance of what they perceived to be unreasonable expectations on the part of one or more of the adults running the program. The girls tended to talk of their leaving in terms that put responsibility on external forces. Workshops were missed because "like I be absent the day that they told us that we had a thing, and then nobody else tell me." One girl said her leaving resulted from confusion over when she was supposed to attend in-school meetings—after she kept receiving conflicting information

about when she was scheduled, she decided not to come at all. After reconsidering, she approached a *Voices* staffer who told her they couldn't talk right then. Another explained she missed a *Voices* meeting because of a family emergency; when she explained what happened she encountered attitude from a *Voices* staffer.

The project ended with five African American participants. Three additional African-American girls joined the two remaining in the project during its third year. Four were honor roll students and the fifth, encouraged by both of her parents to do well in school, never missed a workshop. The urban African American girls clearly exercised their choices—to stay or leave, show up or not, conform or not. *Voices* clearly filled a need, but without school and community support it was destined to be only partially successful.

Rural Girls

All of the rural African American girls expressed pleasure at being in the *Voices* program. In fact, the program and its participants had a very high profile in the rural county. For many of the rural African American *Voices* girls the opportunities—to travel, use computers, ride whitewater rafts, meet monthly with their friends for hands on workshops, build robots, visit a Challenger Space Center, and several colleges—were once in a lifetime events. One African American girl who faithfully attended workshops went to Orlando, Florida, during the third year of the *Voices* project to present at the Informal Science Symposium with two other students and staff. None of the rural African American girls voluntarily left the project. The only rural African American girls to leave *Voices* did so because they moved out of the county. When the girls missed project workshops, it was because of illness or other commitments such as family or church events. To get to the 9:00 a.m. workshops on Saturday, all of the girls rose early, some as early as 5:30 a.m. to catch the 6:00 a.m. school bus. Food was always available during workshops and there were opportunities for the girls to interact informally with their friends. All activities and food were free, and girls kept the artifacts they made, including T-shirts with quilted patches, robots, and Christmas ornaments.

School and community coordinators who worked with the *Voices* girls and the schools at "the other end of the county," were powerful assets to the program. Both had gone to school in the county, were well-liked by the girls, and respected by their colleagues. They were very much a part of the African American community and each had many "dense" relationships with county residents. One was an elementary school teacher whose mother had taught in the county; the other was a counselor working with several county schools.

During the first year we expected that the project would increase the girls' interest in SMT and that their higher motivation would translate into improved classroom performance in those subjects. For some girls it did. However, for many of the rural African American girls, increased motivation was not sufficient to overcome some of the academic skill deficiencies they evidenced.

Instruction in the rural and urban sites was very traditional (e.g., reading textbooks, answering questions, working problems) in both mathematics and science. The hands-on

experiences we provided the girls once a month for three hours were translating into greater motivation but not higher grades. Although the *Voices* parents had successfully lobbied to get algebra reinstated in the middle school, we realized that a number of the girls would need additional support to make satisfactory progress in both science and algebra.

Bridge Number 2: School Performance in Courses and Power Learning

Girls of all ability levels were in the *Voices* program and, consistent with national trends, the African American girls, as a group, had standardized test scores below grade level. In the urban site, the expectation from some parents was that the girls' grades would improve. One girl, who had not missed any activities the first year, was told she may not be allowed to continue in the program the next year if her mathematics grade—a D did not improve. From her parents perspective, the program was not helping.

Now that both the rural and urban girls were attending larger schools we realized that it would be very easy for the girls to be lost in the crowd. Extra academic support was scarce at both sites. Few of the African American girls in either site came from families where academic assistance was available in the home and most could not afford private tutors. Even if after-school help was available, lack of transportation would limit access in the rural site. In order to provide the academic support families wanted and the girls needed, we instituted Power Learning.

Power Learning was a tutorial component intended to assist the girls with their course work in mathematics and science. There were three Power Learning sites. Two were in the rural county—one in the county seat the other in the school that served all of the African American girls. The third was in the urban site at the junior high school. The girls met with tutors twice a week. Transportation home was provided from the rural site for those who needed it.

In each site, we employed female teachers to work with the girls. In the rural site, at the county seat, the girls' tutor was also their classroom teacher and their *Voices* school coordinator. Since most of the girls were strong students who were involved in other activities, and who had access to help other than the tutoring program, the program at the county seat was never well attended and was eventually terminated. However, the Power Learning program in the rural school served the African American girls until *Voices* ended in 1998. The urban program also thrived for two years. In fact, in the final year of *Voices* all five of the urban African American girls attended Power Learning regularly. Students in both the rural and urban sites improved their grades and began to gain greater confidence in the saying "smart is what you can become." Their classroom performance improved dramatically. Our D math student was consistently making a B by the end of eighth grade. Ultimately, their improvement in grades boosted their self-esteem.

The "Black fictive kinship" dynamic provided a bonus in the rural site. A video about the rural participants shows the African American girls talking to an interviewer about their school work. When questioned about their performance in science, they explain, "when one of us get asked a question we all raise our hands; if one of us don't do our homework, we all don't do it. He [the teacher] ask us a question he always call on Sandy or May, he think we don't know it, but we do.....we all know it"(whole group laughs). Powerfully connected and supporting one another, the girls developed an ethos of studying and doing well.

Bridge Number 3 : Mentors

The mentoring aspect of the *Voices* program was originally intended to provide an opportunity for the girls to develop relationships with professional women whose careers were grounded in mathematics and science. During the first year, the mentors shared with the girls different aspects of their professions and introduced them to ways in which math and science were used in those fields. The second year saw the girls and mentors working together to develop and complete community service projects. Mentors were paid a stipend to cover the costs of workshop attendance and any related activities they might choose to attend with their girls, such as visits to museums, science exhibits, or theaters. Each mentor was assigned two girls.

Project staff assumed that because the urban site was located in an area with several large chemical manufacturing facilities, colleges, and medical facilities, we would have no difficulty recruiting mentors. This did not prove to be true. We were eventually able to recruit women who were genuinely interested in the girls, although they did not necessarily possess the mathematics and science skills we originally wanted. In the girls seventh-grade year, urban mentors included two or three female engineers or engineering types, a college professor, and community women. The majority of the project's mentors during the girls' eighth-grade year came from one of the local African American churches and were recruited by the African American community coordinator. There were two engineers, one from the local gas company and one from a large chemical company. At the rural site there were few businesses and with the exception of a pharmacist and a former science teacher, women with mathematics and science careers were few and far between. All of the African American girls' mentors were affiliated with the school system.

Although the African American girls in the rural and urban sites did not have the same quality relationship with their mentors, each girl had an opportunity to interact on a personal level with a woman who had attended college and was employed. In the urban site, it was the mentors' willingness to work with the girls without regard to race or socioeconomic status that was most impressive. These women tried to assume nurturing roles with their girls and encouraged them to accept responsibility for their project and completing the tasks. For some of the urban girls, it was one of few opportunities they had to interact with an adult in an informal way for a sustained period of time. The urban mentors were not only willing to spend time with the girls at workshops, they also developed personal relationships with the girls, inviting them to their homes.

taking them shopping, etc.

In the rural site, social stratification was so much a part of the culture that neither the girls nor their mentors wanted to work across geographic boundaries in the county, which also meant ethnicity was a factor. Project staff felt that it was very important for the girls to be comfortable therefore, we let the community coordinators and school *Voices* coordinators assign mentors to girls. In general, the rural African American girls really seemed to enjoy the extra attention they received from the mentors. Again, the mentors did not necessarily have the skills we desired, but they were willing to interact with the girls, which encouraged them to try the community service learning project.

Final Reflections and Recommendations

The African American girls' schools and communities clearly provided a number of lessons about program interventions and schooling. We began by discussing the unique legacy of African American womanhood and the conscious and subconscious stereotypes used to marginalize African American women and girls. We believe that any effective schooling or programming for African American girls must be grounded in an understanding of these phenomena and an education agenda that does not allow negative stereotypes to diminish expectations. Ron Edmonds reminds us, "we can whenever, wherever we choose teach all children whose education is of interest to us....Whether or not we do depends on how we feel about the fact that we haven's so far."

Teachers and others involved in schooling African American girls must first acknowledge any negative attitudes or indifference toward African American girls. Once acknowledged, these attitudes or indifference must not be allowed to affect expectations for or behavior toward African American girls.

Second, our experience with the *Voices* program in the urban and rural sites demonstrated that unless the schools and communities actively support the intervention, it will be only minimally effective, especially in urban environments. We experienced a tremendous amount of difficulty in finding staff willing to work with the urban girls, many of whom were African American. When we were able to identify school staff willing to work with girls, they did not necessarily bring with them a sense of true advocacy for the girls. We found ourselves constantly floundering for support for *Voices* in the urban junior high school community and in two of the three elementary schools. Our Power Learning teachers in both the rural and urban sites demonstrated that teachers who want the girls to do well can truly influence their academic performance. If school personnel are unwilling to work with interventions in urban school, intervention designers may need to recruit and train parents and others from the girls' communities to take on the critical roles of program advocates. Bob Moses uses such a model in the "Algebra Project."

In the rural site the engagement with the girls' schools and communities was instantaneous and lasted throughout the project. Our access to the rural African American community was facilitated by two African American women who were county "insiders." They provided a bridge between the project, the community, and the schools. This natural bridge did not exist in the urban site, and we could not create it alone.

Of additional concern is the difficult world in which many of the poor African American girls live, a world that may involve violence, drugs, and neglect from adults—including teachers. In such communities, school programs need more human resources in addition to more challenging and intriguing science and mathematics curricula. Our experience leads us to believe that many of the urban African American girls needed not only a safe place to experience mathematics and science learning, but a place to express emotions and share the realities of their lives with caring adults. While not every urban African American girl who left our project was embroiled in some personal crisis, many were. Some of the most troubled girls, like many adolescents, were unable or unwilling to share the issues that were most pressing in their lives. Therapy or other programs to help such girls avoid self-destructive behavior are rarely available. These girls are also less likely than their rural counterparts to have access to a community of caring adults through extended family networks and church activities.

Finally, with respect to mathematics and science instruction in schools, school systems must make and enforce policies that ensure all students have access to rigorous courses. Our experience demonstrated that testing and administrative prerogatives can and do prevent academically capable students from being taught to high standards and being enrolled in rigorous courses. Placement and course enrollment policies should be reviewed to ensure that administrators cannot unilaterally make decisions that override student and parent preferences. Schools must also find ways to provide tutoring and academic support for students.

Mathematics and science education reform advocates must work in concert with teachers and administrators in poor rural and urban schools to ensure that the students in those systems benefit from the strides that have been made by reform initiatives. More intervention programs that target poor rural and urban students are necessary to challenge the conventional wisdom of "low expectations" for student performance.

The *Voices* project clearly filled a need in the rural site and to some degree, met some of the needs of the urban African American girls. But the project is now over. We can only share our experiences, both positive and negative, as we attempted to build bridges between the girls' realities and their dreams. Our work has made clear to us that an intervention like *Voices* can make a powerful difference for African American girls and their families in poor rural communities. Our work in the urban site has challenged us to think more creatively about designing interventions that provide sustained engagement for urban African American girls, their schools, and communities.

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